We claim:

1.   A substantially purified nucleic acid molecule that encodes a soybean protein or fragment thereof comprising a sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 5521.

5

2.   A substantially purified soybean protein or fragment thereof, wherein said soybean protein is encoded by a nucleic acid molecule that comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 5521.

10   3.   A substantially purified antibody or fragment thereof which is capable of specifically binding to a specific maize or soybean enzyme or fragment thereof according to claim 2.

4.   A transformed plant having a nucleic acid molecule which comprises:

(a)   an exogenous promoter region which functions in a plant cell to

15   cause the production of a mRNA molecule;

(b)   a structural nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 5521 or complements thereof;

(c)   a 3' non-translated sequence that functions in said plant cell to

20   cause termination of transcription and addition of polyadenylated ribonucleotides to a 3' end of said mRNA molecule.

5. The transformed plant according to claim 4, wherein said structural nucleic acid molecule is a complement of any of the nucleic acid sequences of SEQ ID NO: 1 through SEQ ID NO: 5521.

6. The transformed plant according to claim 5, wherein said plant is soybean or maize.

7. The transformed plant according to claim 5, wherein said plant is soybean.

8. A method for determining a level or pattern in a plant cell of a protein in a plant comprising:

(a) incubating, under conditions permitting nucleic acid hybridization, a marker nucleic acid molecule, said marker nucleic acid molecule selected from the group of marker nucleic acid molecules which specifically hybridize to a nucleic acid molecule having the nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 5521 or complement thereof, with a complementary nucleic acid molecule obtained from said plant cell or plant tissue, wherein nucleic acid hybridization between said marker nucleic acid molecule and said complementary nucleic acid molecule obtained from said plant cell or plant tissue permits the detection of an mRNA for said enzyme;

(b) permitting hybridization between said marker nucleic acid molecule and said complementary nucleic acid molecule obtained from said plant cell or plant tissue; and

Sub P4 (cont'd)

(c)   detecting the level or pattern of said complementary nucleic acid,

wherein the detection of said complementary nucleic acid is

predictive of the level or pattern of said protein.

9.   The method of claim 8, wherein said level or pattern is detected by *in situ*

5   hybridization.

10.   The method of claim 8, wherein said level or pattern is detected by tissue

printing.

11.   The method of claim 8, wherein said plant is maize or soybean.

12.   The method of claim 11, wherein said plant is soybean.

10   13.   A method of determining a mutation in a plant whose presence is

predictive of a mutation affecting a level or pattern of a protein comprising the steps:

(a)   incubating, under conditions permitting nucleic acid hybridization,

a marker nucleic acid, said marker nucleic acid selected from the

group of marker nucleic acid molecules which specifically

15   hybridize to a nucleic acid molecule consisting of the nucleic acid

sequence selected from the group consisting of SEQ ID NO: 1

through SEQ ID NO: 5521 or complement thereof and a

complementary nucleic acid molecule obtained from said plant,

wherein nucleic acid hybridization between said marker nucleic

20   acid molecule and said complementary nucleic acid molecule

obtained from said plant permits the detection of a polymorphism

whose presence is predictive of a mutation affecting said level or

pattern of said protein in said plant;

(b)   permitting hybridization between said marker nucleic acid

molecule and said complementary nucleic acid molecule obtained

5   from said plant; and

(c) ~~detecting the presence~~ of said polymorphism, wherein the detection

of said polymorphism is predictive of said mutation.

14.   The method of claim 13, wherein said level or pattern is detected by *in situ*

hybridization.

10   15.   The method of claim 13, wherein said level or pattern is detected by tissue

printing.

16.   The method of claim 13, wherein said plant is maize or soybean.

17.   The method of claim 16, wherein said plant is soybean.